



Call for Expression of Interest
Marie Skłodowska-Curie Postdoctoral Fellowship
(HORIZON-MSCA-2024-PF-01-01)

The University of Malta (UM) is interested in hosting Marie Skłodowska-Curie Action fellows to work in its research teams and welcomes expressions of interest from excellent post-doctoral researchers to apply for the Postdoctoral Fellowship call.

University of Malta (UM) is the sole public and highest teaching institution in Malta, with its structures being in line with the Bologna Process and the European Higher Education area. UM has a 400-year history and there are over 11,500 students including 1,000 foreign/exchange students from nearly 92 different countries, following fulltime or part-time degree and diploma courses. Around 3,500 students graduate each year. UM is comprised of 14 Faculties and several other campuses: at Valletta, Marsaxlokk and Gozo. As of 2020, the UM employed a total of 2,848 employees including academics, administrative, technical and industrial staff (1,885 on a full-time basis and 963 on a part-time basis). Over the past ten years, the UM has been involved as coordinator and partner in numerous EU-funded projects under various Programmes including Horizon Europe, Horizon 2020, FP7, Erasmus+, Lifelong Learning Programme, INTERREG, National Funding and various other international and national programmes and initiatives. The UM is also represented in a number of European and International University networks and groups.

[Faculty of Information and Communication Technology](#)

[Department of Artificial Intelligence](#)

The Department of Artificial Intelligence (AI) at the UM, established in 1993, fosters a dynamic environment for dedicated resident AI academics and over 100 students to engage in cutting-edge research and education in various AI subfields, including Machine Learning, Deep Learning, Digital Games, Virtual Reality, Augmented Reality, Robotics, Big Data, Creative Technologies, Text Processing, IoT, Data Science, AI in Education, and Computer Vision. The department has established itself as the leading force in shaping the future of AI in Malta and beyond tackling real-world challenges, contributing to national strategies, and generating top AI professionals. Apart from equipping students with the theoretical and practical skills to thrive in the AI domain, the AI department collaborates with local industry partners to ensure the cutting-edge R&D has a direct impact on societal progress. By nurturing AI talent and fostering innovation, the department aspires to spearhead one of the university's research clusters, AI@UM, that aims to facilitate both national and international research cooperation in AI while establishing greater collaboration between academia, Government, and businesses. Through its work the cluster will promote the use of ethical principles, transparent and testable algorithms, and inclusive AI as it becomes a national access point for AI competence.

Together Prof. MacDonald and Prof. Montebello will provide the Post Doc candidate with the experience, guidance, expertise and support needed to become an excellent researcher and academic in Digital Transformation. One of UM's goals is to attract PhD students and Post Doc candidates in order to climb in the QS World University Rankings: Sustainability 2024 which is currently 1051-1100 <https://www.topuniversities.com/sustainability-rankings?search=university%20of%20Malta>.



A Post Doc candidate to assist the UM address and keep pace in the world-wide pedagogical revolution with regards to digital transformation in higher education. The Post Doc candidate will collaborate with academic staff at the UM to design, pilot and research a micro-credential series to facilitate a cultural change in attitudes and practices regarding the use of smart technologies in teaching and learning by researching, practical solutions for digital transformation.

Post Doc Research Tasks The successful Post Doc candidate will gain valuable research experience in digital transformation career related skills such as: research grant writing, designing, delivering and researching practical learning micro-credentials and digital resources including with AI and VR, researching best digital education teaching and learning practices, developing ethical, political and practical guidelines, frameworks, and vade mercums, and publishing in refereed journals.

The Post Doc Candidate will be involved in designing, piloting and researching a series of micro-credentials to support academic staff in digital transformation. The micro-credential series will be accessible and convenient and break content into manageable bits to build learner confidence and competencies using technology to support life long and life wide learning. The micro-credential series will enable academic staff to realise the need for new labour market relevant skills, and will be designed to demonstrate how personalised coaching experiences in their teaching and learning on top of qualifications can support transfer to the workplace, career promotion and unemployment. Moreover, the micro-credentials will be designed to boost digital competencies, support problem oriented action practices, up-skilling and re-skilling for business and entrepreneurial skill development. The micro-credential series the Post Doc will collaboratively design, pilot and research will provide different perspective and learning experiences by support academic staff on how to use digital education tools such as AI for video and artefact creation to save time and create more meaningful learning experiences. The series will address the need for overhauls in academic assessment and explore how AI can be used in assessing learning and addressing higher order thinking skills. The series will introduce academic staff to software packages and analytics to check for plagiarism. Solutions shared in the series may involve having students pitch their essay to the learning cohort and address questions rather than simply handing an essay in for marking - better preparing learners for the workforce. Academic staff will realise that AI can provide learners with more feedback than academic staff can provide. The series will provide innovative solutions for the broken higher education evaluation system and the needs to push learners to higher level thinking in order to result in deep and a more connected understanding of content, facilitated thought human interactive and discussion.

The Post Doc will lead the research to determine the specific micro-credential series topics which will be decided based on a needs analysis involving a series of focus group interviews with academic staff. The specific topics and length of the micro-credentials will be determined by the analysis of the focus group data but it is suspected that this project will involve the design, piloting and researching of approximately 6 X 3X one hour long micro credentials involving some of the following topics: 1. Understanding how technology (particularly AI) can be used to personalise individual learning pathways and design, deliver and evaluate engaging, rich, meaningful learning experiences. 2. Practical tips on how to integrate AI into study-units to make learning more relevant and engaging. 3. Communicating with learners on AI policies, rules and plagiarism. 4. Using learner analytics and



software to detect plagiarism. 5. How to use AI to evaluate learners, provide rich feedback and save time. 6. Finding available AI and VR learning resources to enhance teaching and learning experiences. Outcomes of the Project A UM Digital Transformation needs analysis report Approximately 6 (three X one hour long) practical online micro-credentials A UM ethics guide of AI best practices A refereed publication lead by the Post Doc on the process and best practices found from the evaluation of the micro-credentials. A second refereed publication on the AI ethics framework Conclusion COVID has taught us that we did not adequately prepare academics for the future. Higher Education must develop Communities of Practice that are accessible, open, transparent, collective, and sharing. Not everyone can be an early adopter, nor should they be pressured to be one. But in every faculty, there are natural 'early adopters' who can create innovate change from the bottom up supported by a top-down vision. When these individuals succeed, others will be encouraged to follow. Higher education must resist working in silos and develop user centred approaches where academic staff learn with students to foster excitement and the right conditions for an accessible, inclusive, innovative digital learning mindset and working environment. It is no longer just about learning the content, but engaging with the content. Higher education should have a mandate to lead in the digital transformation revolution tasks, and an understanding of the ethical implications in using the technologies available for learning.

Research Field: Information Science and Engineering (ENG)
Keywords: Digital Transformation, Artificial Intelligence,
Curriculum Design and Program Evaluation

Prof. Colla MacDonald is a Senior Research Advisor in the Office of the Rector at the University of Malta (UM). Her research area is Digital Transformation and Curriculum Design and Evaluation. She has been a resident of Malta for 8 years after taking early retirement in 2016 from the University of Ottawa, Canada after 29 years (University of Ottawa ranked 72 in the QS World University Sustainability Rankings 2024). During Prof MacDonald's Malta residency, she has worked with several departments, faculties, private industries, NGO's and interdisciplinary and international research teams carrying out research projects and designing resources in digital transformation. She has been PI on two Erasmus+ grants (DIG-IT and TOVID). Prof. MacDonald has extensive experience supervising MEd., MA., PhD students and Post Doc Candidates. Prof Mac Donald will co supervise a Post Doc candidate with Prof Matthew Montebello who is a Full Professor and Head of the Department of Artificial Intelligence at the UM.

The selected candidates will receive dedicated support from the co-supervisors [Prof. Colla Jean MacDonald](#) with [Prof. Matthew Montebello](#), and the Research Support Services Directorate to write a successful proposal and submission.

Interested candidates must be in possession of a doctoral degree with not more than 8 years post PhD research experience and must not have resided in Malta for more than 12 the past during the past 3 years. Furthermore, their research interests should be relevant to the above project. Kindly send a covering letter and CV to the corresponding co-supervisors, [Prof. Colla Jean MacDonald](#) and [Prof. Matthew Montebello](#), keeping in copy funding.rssid@um.edu.mt with 'MSCA-PF-2024 'candidate name'' as the email subject by **24 May 2024**.